Unified Stormwater Sizing Criteria (Chapter 2)

1) Water Quality Volume (WQ_v):
   a) Volume needed to capture and treat the runoff from 90% of the average annual rainfall,
   b) Equivalent to 1 inch of rainfall × volumetric runoff coefficient (R_v) × site area,
   c) Minimum volume of 0.2 $^{inches}/_{acre}$ used for sites where imperviousness <15%,
   d) WQ_v is directly related to site imperviousness,
   e) WQ_v may be reduced using environmentally-friendly nonstructural techniques (Ch. 5), and
   f) WQ_v is treated using BMPs capable of meeting pollutant removal goals of 80% total suspended solids (TSS) and 40% total phosphorus (TP)

2) Recharge Volume (Re_v):
   a) Volume needed to mimic existing groundwater recharge rates thereby maintaining dry weather hydrology of streams and wetlands,
   b) Based on average annual recharge rates of USDA hydrologic soil groups (HSGs),
   c) Equivalent to a soil recharge factor (S) × volumetric runoff coefficient (R_v) × site area,
   d) Re_v is directly related to site imperviousness,
   e) Re_v is a percentage of WQ_v, and
   f) Re_v is provided by either nonstructural techniques, structural BMPs or both.

3) Channel Protection Volume (Cp_v):
   a) Protects stream channels from excessive erosion caused by the increase of flow at or near bankful levels attributed to urbanization,
   b) Cp_v is provided by 24 hour extended-detention (12 hour in USE III/IV) of the post-developed one-year design storm, and
   c) Cp_v treatment alone does not meet water quality requirements.

4) Overbank Flood Protection (Q_{px}):
   a) Protects infrastructure from flooding caused by increases in peak flows due to urbanization,
   b) Local jurisdictions on the Western Shore may require ten-year peak management (Q_{p10}), and
   c) Two-year peak management (Q_{p2}) is required on the Eastern Shore.

5) Extreme Flood Protection (Q_f):
   a) Protects infrastructure from extreme flood events (e.g., 100 year storm) caused by increases in peak flows,
   b) Floodplains provide natural storage and flow attenuation,
   c) All new development in floodplains is highly restricted, and
   d) Older development exists in floodplains and may warrant protection.

Bioretention Filter at PSINet Ravens Stadium

Acceptable Urban BMP Groups (Chapter 3)

1. Stormwater Ponds
2. Stormwater Wetlands
3. Infiltration
4. Filtering Practices
5. Open Channel Practices
6. Nonstructural Practices

"Pocket" Wetland BMP

Structural BMPs that do not fully meet the WQ_v Requirement

1. Catch Basin Inserts
2. Dry Extended Detention Ponds
3. Water Quality Inlets
4. Hydrodynamic Structures
5. Filter Strips
6. Grass Channels
7. Street Sweeping
8. Deep Sump Catch Basins
9. Dry Wells
10. On-line Storm Drain Storage

Stormwater Credits for Innovative Site Planning (Chapter 5)

In Maryland, there are many programs that seek to minimize the impact of land development. Nonstructural practices and design techniques play an important role in reducing water quality impacts and are a critical feature of any stormwater design. Nonstructural practices have been broadly classified into six groups and are designed to mesh with existing State and local programs (e.g., forest conservation, stream buffers, etc.). The six stormwater credits are:

1. Natural Area Conservation
2. Disconnection of Rooftop Runoff
3. Disconnection of Non-Rooftop Runoff
4. Sheet Flow to Buffers
5. Open Channel Use
6. Environmentally Sensitive Development

Stream Buffer w/ Reforestation

Wet Swale Along US 113 (Worcester County)